

21 --The present application is a divisional application of United States Serial Number 09/298,866, filed April 23, 1999, the entire disclosure of which is hereby incorporated by reference.--

At page 53, please delete lines 9-12 and replace with the following: --An appendix showing all changes to the specification is attached to this amendment as required by 35 C.F.R. § 1.121(b).

22 --Microorganisms

Accession Number

CAT-RFT-pPROTA in E. coli INVα

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FL-RFT-pcDNA3 in E. coli DH5α

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23 IN THE CLAIMS:

Kindly delete claims 1-47 and 60-62 without prejudice to Applicants' right to prosecute the subject matter of the claims in a related co-pending application.

Kindly replace claims 48-53 with the following substitute claims. An appendix showing all changes to these claims is attached to the Preliminary Amendment as required under 37 C.F.R. § 1.121(b).

24 48. (Amended) A method for the preparative synthesis of a molecule comprising Fuca1→2Galβ1→3GalNAc, said method comprising contacting an isolated or purified α1→2fucosyltransferase comprising an amino acid sequence as depicted in Figure 5 (SEQ ID NO: 8) with GDP-fucose and a molecule having a terminal Galβ1→3GalNAc moiety and recovering the molecule comprising Fuca1→2Galβ1→3GalNAc.

25 49. (Amended) A method for the preparative synthesis of a glycolipid, glycoprotein, glycolipoprotein or free oligosaccharide comprising Fuca1→2Galβ1→3GalNAc, said method comprising contacting an isolated or purified protein comprising an amino acid sequence as depicted in Figure 5 (SEQ ID NO: 8) with GDP-fucose and a glycolipid,

glycoprotein, glycolipoprotein or free oligosaccharaide having a terminal Gal β 1 \rightarrow 3GalNAc moiety and recovering the glycolipid, glycoprotein, glycolipoprotein or free oligosaccharaide comprising Fuca1 \rightarrow 2Gal β 1 \rightarrow 3GalNAc.

50. (Amended) The method according to Claim 49 wherein the α 1 \rightarrow 2fucosyltransferase is contacted with an oligosaccharide comprising a terminal Gal β 1 \rightarrow 3GalNAc moiety.

51. (Amended) A method for the preparative synthesis of fucosyl-GM₁ comprising contacting an isolated or purified α 1 \rightarrow 2fucosyltransferase comprising an amino acid sequence as depicted in Figure 5 (SEQ ID NO: 8) with GDP-fucose and the ganglioside GM₁ and recovering fucosyl-GM₁.

52. (Amended) A method for the preparative synthesis of a molecule comprising Fuca1 \rightarrow 2Gal β 1 \rightarrow 3GalNAc, said method comprising contacting a recombinant α 1 \rightarrow 2fucosyltransferase or a cellular fraction of a recombinant cell containing a vector having a nucleotide sequence that encodes and expresses an amino acid sequence as depicted in Figure 5 (SEQ ID NO: 8) and having α 1 \rightarrow 2 fucosyltransferase activity, with GDP-fucose and a molecule having a terminal Gal β 1 \rightarrow 3GalNAc moiety and recovering a molecule comprising Fuca1 \rightarrow 2Gal β 1 \rightarrow 3GalNAc.

53. (Amended) A method for the preparative synthesis of a glycolipid, glycoprotein, glycolipoprotein or free oligosaccharide comprising Fuca1 \rightarrow 2Gal β 1 \rightarrow 3GalNAc, said method comprising contacting an isolated or purified recombinant produced rat α 1 \rightarrow 2fucosyltransferase or a cellular fraction of a recombinant cell containing a vector having a nucleotide sequence as depicted as SEQ ID NO: 7 and having α 1 \rightarrow 2 fucosyltransferase activity, with GDP-fucose and a glycolipid, glycoprotein, glycolipoprotein or oligosaccharide having a terminal Gal β 1 \rightarrow 3GalNAc moiety and recovering a glycolipid, glycoprotein, glycolipoprotein or free oligosaccharide comprising Fuca1 \rightarrow 2Gal β 1 \rightarrow 3GalNAc.

Please insert the following new claims:

63. (New) A method for the preparative synthesis of a molecule comprising Fuc $\alpha 1 \rightarrow 2$ Gal $\beta 1 \rightarrow 3$ GalNAc, said method comprising contacting an isolated or purified $\alpha 1 \rightarrow 2$ fucosyltransferase comprising an amino acid sequence as depicted in Figure 3A (SEQ ID NO: 10) with GDP-fucose and a molecule having a terminal Gal $\beta 1 \rightarrow 3$ GalNAc moiety and recovering the molecule comprising Fuc $\alpha 1 \rightarrow 2$ Gal $\beta 1 \rightarrow 3$ GalNAc.

64. (New) A method for the preparative synthesis of a molecule comprising Fuc $\alpha 1 \rightarrow 2$ Gal $\beta 1 \rightarrow 3$ GalNAc, said method comprising contacting an isolated or purified $\alpha 1 \rightarrow 2$ fucosyltransferase consisting of an amino acid sequence as depicted in Figure 5 (SEQ ID NO: 8) with GDP-fucose and a molecule having a terminal Gal $\beta 1 \rightarrow 3$ GalNAc moiety and recovering the molecule comprising Fuc $\alpha 1 \rightarrow 2$ Gal $\beta 1 \rightarrow 3$ GalNAc.

65. (New) A method for the preparative synthesis of a molecule comprising Fuc $\alpha 1 \rightarrow 2$ Gal $\beta 1 \rightarrow 3$ GalNAc, said method comprising contacting an isolated or purified $\alpha 1 \rightarrow 2$ fucosyltransferase consisting of an amino acid sequence as depicted in Figure 3A (SEQ ID NO: 10) with GDP-fucose and a molecule having a terminal Gal $\beta 1 \rightarrow 3$ GalNAc moiety and recovering the molecule comprising Fuc $\alpha 1 \rightarrow 2$ Gal $\beta 1 \rightarrow 3$ GalNAc.

66. (New) A method for the preparative synthesis of a molecule comprising Fuc $\alpha 1 \rightarrow 2$ Gal $\beta 1 \rightarrow 3$ GalNAc, said method comprising contacting an isolated or purified $\alpha 1 \rightarrow 2$ fucosyltransferase the amino acid sequence of which consists of a catalytic domain defined by amino acids numbers 28-380 as depicted in Figure 5 (SEQ ID NO: 8) or by amino acids numbered 1-353 as depicted in Figure 3A (SEQ ID NO: 10).

67. (New) The method according to claim 63, wherein the molecule is a glycolipid, a glycoprotein, a glycolipoprotein or a free oligosaccharide.

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1 68. (New) The method according to claim 64, wherein the molecule is a
2 glycolipid, a glycoprotein, a glycolipoprotein or a free oligosaccharide.

1 69. (New) The method according to claim 65, wherein the molecule is a
2 glycolipid, a glycoprotein, a glycolipoprotein or a free oligosaccharide.

1 70. (New) The method according to claim 66, wherein the molecule is a
2 glycolipid, a glycoprotein, a glycolipoprotein or a free oligosaccharide.

1 71. (New) A method for the preparative synthesis of a fucosyl-GM₁,
2 comprising contacting an isolated or purified $\alpha 1 \rightarrow 2$ fucosyltransferase comprising an amino
3 acid sequence as depicted in Figure 3A (SEQ ID NO: 10) with GDP-fucose and the
4 ganglioside GM₁, and recovering fucosyl-GM₁.

1 72. (New) A method for the preparative synthesis of a molecule comprising
2 Fuca $1 \rightarrow 2$ Gal $\beta 1 \rightarrow 3$ GalNAc, said method comprising contacting a recombinant $\alpha 1 \rightarrow 2$
3 fucosyltransferase or a cellular fraction of a recombinant cell containing a vector having a
4 nucleotide sequence that encodes and expresses an amino acid sequence as depicted in Figure
5 3A (SEQ ID NO. 10) and having $\alpha 1 \rightarrow 2$ fucosyltransferase activity, with GDP-fucose and a
6 molecule having a terminal Gal $\beta 1 \rightarrow 3$ GalNAc moiety and recovering a molecule comprising
7 Fuca $1 \rightarrow 2$ Gal $\beta 1 \rightarrow 3$ Gal NAc.

1 73. (New) The method according to claim 72, wherein the molecule is a
2 glycolipid, a glycoprotein, a glycolipoprotein, or a free oligosaccharide.

1 74. (New) The method according to claim 71, wherein the amino acid
2 sequence is encoded by the nucleotide sequence as depicted as SEQ ID NO: 7.

1 75. (New) The method according to claim 72, wherein the amino acid
2 sequence is encoded by the nucleotide sequence as depicted as SEQ ID NO: 9.

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